

Appl. No.: 10/731,829
Amdt. dated June 2, 2006
Reply to Office action of December 2, 2005

Amendments to the Claims:

1. (Currently amended) An integration area providing interconnections, comprising:

a plurality of component connection receptacles;

a plurality of first conductive elements extending from each component connection receptacle;

a plurality of second conductive elements, wherein each second conductive element extends across at least one first conductive element at an intermediate location such that each first and second conductive element includes an elongate portion extending outwardly from both sides of at least one of said second and first conductive elements, respectively; and

a plurality of connections between said first conductive elements and said second conductive elements to provide interconnections, wherein the plurality of connections are established at those intermediate locations at which said second conductive elements extend across said first conductive elements,

wherein said first and second conductive elements each comprise an insulative portion and a plurality of conductive portions,

wherein the plurality of interconnections between first and second conductive elements are established by interconnections between corresponding conductive portions of said first and second conductive elements at respective intermediate locations at which a conductive portion of said second conductive element extends across at least one conductive portion of said first conductive element such that a conductive portion of each first and second conductive element includes an elongate portion extending outwardly from both sides of the corresponding conductive portion at the intermediate location at which an interconnection is established.

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2. (Original) The integration area according to claim 1, wherein said plurality of component connection receptacles comprise a plurality of connector shells and inserts.
3. (Original) The integration area according to claim 2, wherein each of said plurality of first conductive elements is connected at one end to an insert.
4. (Withdrawn) The integration area according to claim 1, wherein said plurality of connections between said first conductive elements and said second conductive elements comprise a plurality of pins between said first conductive elements and said second conductive elements and a plurality of jumpers, wherein each jumper connects at least two of the pins.
5. (Original) The integration area according to claim 1, wherein said plurality of connections between said first conductive elements and said second conductive elements comprise a plurality of connection vias between said first conductive elements and said second conductive elements and a plurality of solder patches, wherein each solder patch connects at least two of the connection vias.
6. (Withdrawn) The integration area according to claim 1, wherein said plurality of connections between said first conductive elements and said second conductive elements comprise an insulation barrier between said first and second conductive elements, wherein said insulation barrier defines at least one opening through which said first and second conductive elements connect.
7. (Withdrawn) The integration area according to claim 6, wherein the at least one opening defined by the insulation barrier is filled with conductive material.
8. (Withdrawn) The integration area according to claim 7, wherein the conductive material comprises solder.

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9. (Withdrawn) The integration area according to claim 6, wherein a conductive pin extends through at least one of the openings defined by the insulation barrier to connect the first and second conductive elements.

10. (Withdrawn) The integration area according to claim 1, wherein said plurality of connections between said first conductive elements and said second conductive elements comprise fluid insulation material between said first and second conductive elements, wherein said fluid insulation material is displaced at points of connection between said first and second conductive elements.

11. (Withdrawn) The integration area according to claim 1, wherein said plurality of connections between said first conductive elements and said second conductive elements comprise connection vias between said first and second conductive elements that provide connections at all connection points between said first and second conductive elements, wherein an opening is defined at points of connection where connections between said first and second conductive elements are undesirable.

12. (Original) The integration area according to claim 1, wherein said plurality of first and second conductive elements comprise a flatwire segment.

13. (Original) The integration area according to claim 1, wherein said plurality of first and second conductive elements comprise a printed circuit board.

14. (Withdrawn) The integration area according to claim 1, wherein said first and second conductive elements define openings at least partially plated with a conductive material, wherein the conductive material of each opening contacts at least one conductive portion of each of said first and second conductive elements, and wherein said plurality of connections between said first conductive elements and second

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conductive elements comprise at least one conductive pin that extends through respective openings in said first and second conductive elements.

15. (Withdrawn) The integration area according to claim 14, wherein said plurality of connections between said first conductive elements and said second conductive elements further comprise an insulation barrier between said first and second conductive elements, wherein said insulation barrier defines at least one opening aligned with respective openings in said first and second conductive elements.

16. (Withdrawn) The integration area according to claim 1, wherein said plurality of connections between said first conductive elements and said second conductive elements comprise an array of spring-loaded pins between said first and second conductive elements that are in contact with one of said first and second conductive elements, wherein said plurality of connections between said first conductive elements and said second conductive elements further comprises an insulation barrier between the array of spring-loaded pins and the other of said first and second conductive elements, and wherein the insulation barrier defines opening through which desired spring-loaded pins may extend to connect said first and second conductive elements.

17. (Currently amended) A system of integration areas providing interconnections among a plurality of components, comprising:

at least two integration areas with each integration area comprising:

a plurality of component connection receptacles;

a plurality of first conductive elements extending from respective component connection receptacles;

a plurality of second conductive elements, wherein each second conductive element extends across at least one first conductive element at an intermediate location such that each first and second conductive element includes an elongate portion extending outwardly from both sides of at least one of said second and first conductive elements, respectively; and

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a plurality of connections between said first conductive elements and said second conductive elements to provide interconnections, wherein the plurality of connections are established at those intermediate locations at which said second conductive elements extend across said first conductive elements;

a first backplane comprising at least third and fourth conductive elements to provide interconnections;

a second backplane comprising at least fifth and sixth conductive elements to provide interconnections among the plurality of components associated with said first backplane; and

a plurality of connection elements between said first and second backplanes, wherein the conductive elements comprise an insulative portion and a plurality of conductive portions,

wherein the interconnections between first and second conductive elements are established by interconnections between corresponding conductive portions of said first and second conductive elements at respective intermediate locations at which a conductive portion of said second conductive element extends across at least one conductive portion of said first conductive element such that a conductive portion of each first and second conductive portion includes an elongate portion extending outwardly from both sides of the corresponding conductive portion at the intermediate location at which an interconnection is established.

18. (Original) The system of integration areas according to claim 17, wherein said plurality of connection elements comprise single wire.

19. (Original) The system of integration areas according to claim 17, wherein said plurality of connection elements comprise coaxial cables.

20. (Original) The system of integration areas according to claim 17, wherein said plurality of connection elements comprise twisted-pair wires.

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21. (Original) The system of integration areas according to claim 17, wherein said plurality of connection elements comprise flatwire.

22. (Withdrawn) The system of integration areas according to claim 17, wherein at least one of the plurality of connections between said first conductive elements and said second conductive elements, the first backplane and the second backplane comprises a plurality of pins between at least one of the respective first and second conductive elements and third, fourth, fifth and sixth conductive elements and a plurality of jumpers, wherein each jumper connects at least two of the pins.

23. (Previously presented) The system of integration areas according to claim 17, wherein at least one of the plurality of connections between said first conductive elements and said second conductive elements, the first backplane and the second backplane comprises a plurality of connection vias between at least one of the respective first and second conductive elements and third, fourth, fifth and sixth conductive elements and a plurality of solder patches, wherein each solder patch connects at least two of the connection vias.

24. (Withdrawn) The system of integration areas according to claim 17, wherein at least one of the plurality of connections between said first conductive elements and said second conductive elements, the first backplane and the second backplane comprise an insulation barrier between at least one of the respective first and second conductive elements and third, fourth, fifth and sixth conductive elements, wherein said insulation barrier defines at least one opening through which the respective conductive elements connect.

25. (Withdrawn) The system of integration areas according to claim 24, wherein the at least one opening defined by the insulation barrier is filled with conductive material.

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26. (Withdrawn) The system of integration areas according to claim 25, wherein the conductive material comprises solder.

27. (Withdrawn) The system of integration areas according to claim 24, wherein a conductive pin extends through at least one of the openings defined by the insulation barrier to connect respective conductive elements.

28. (Withdrawn) The system of integration areas according to claim 17, wherein at least one of the plurality of connections between said first conductive elements and said second conductive elements, the first backplane and the second backplane comprise fluid insulation material between at least one of the respective first and second conductive elements and third, fourth, fifth and sixth conductive elements, wherein said fluid insulation material is displaced at points of connection between the respective conductive elements.

29. (Withdrawn) The system of integration areas according to claim 17, wherein at least one of the plurality of connections between said first conductive elements and said second conductive elements, the first backplane and the second backplane comprise connection vias between at least one of the respective first and second conductive elements and third, fourth, fifth and sixth conductive elements that provide connections at all connection points between the respective conductive elements, wherein an opening is defined at points of connection where connections between the respective conductive elements are undesirable.

30. (Original) The system of integration areas according to claim 17, wherein at least one of the conductive elements comprise a flatwire segment.

31. (Original) The system of integration areas according to claim 17, wherein at least one of the conductive elements comprise a printed circuit board.

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32. (Withdrawn) The system of integration areas according to claim 17, wherein at least one of said first conductive elements and said second conductive elements, and the third, fourth, fifth and sixth conductive elements define openings at least partially plated with a conductive material, wherein the conductive material of each opening contacts at least one conductive portion of the respective conductive element, and wherein at least one of the plurality of connections between said first conductive elements and said second conductive elements, the first backplane and the second backplane comprise at least one conductive pin that extends through respective openings in the respective first and second conductive elements, and third, fourth, fifth and sixth conductive elements.

33. (Withdrawn) The system integration areas according to claim 32, wherein at least one of said plurality of connections between at least one of said first conductive elements and said second conductive elements, the first backplane and the second backplane further comprise an insulation barrier between the respective first and second conductive elements, and third, fourth, fifth and sixth conductive elements wherein said insulation barrier defines at least one opening aligned with respective openings in the respective first and second conductive elements, and third, fourth, fifth and sixth conductive elements.

34. (Withdrawn) The system of integration areas according to claim 17, wherein at least one of said plurality of connections between said first conductive elements and said second conductive elements, and the first backplane and second backplane comprise an array of spring-loaded pins between the respective first and second conductive elements, and third, fourth, fifth and sixth conductive elements that are in contact with one of said respective first and second conductive elements, and third, fourth, fifth and sixth conductive elements, wherein said plurality of connections between at least one of said first conductive elements and said second conductive elements, and the first backplane and the second backplane further comprises an insulation barrier between the array of spring-loaded pins and the other of the respective said first and

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second conductive elements, and third, fourth, fifth and sixth conductive elements, and wherein the insulation barrier defines opening through which desired spring-loaded pins may extend to connect the at least one of the first and second conductive elements and first and second backplane.

35. (Currently amended) A method of interconnecting a plurality of components within a set of components, comprising:

providing a plurality of first conductive elements extending from each of a plurality of component connection receptacles associated with the plurality of components within the set of components;

positioning a plurality of second conductive elements across at least one first conductive element at respective intermediate locations, wherein said first and second conductive elements each comprise an insulative portion and a plurality of conductive portions such that an elongate portion of the conductive portion of each first and second conductive element includes an elongate portion extending extends outwardly from both sides of an conductive portion of at least one of the second and first conductive elements, respectively, at the respective intermediate location; and

connecting the first conductive elements and the second conductive elements at a first plurality of connection points at which the second conductive elements extend across said first conductive elements, wherein connecting the first conductive elements and the second conductive elements comprises overlapping and interconnecting conductive portions of the respective conductive elements at the respective intermediate locations.

36. (Original) The method of interconnecting a plurality of components according to claim 35, further comprising:

connecting a plurality of third and fourth conductive elements within a backplane at a second plurality of connection points, wherein connecting the third and fourth conductive elements comprises overlapping conductive portions of the respective conductive elements.

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37. (Withdrawn) The method of interconnecting a plurality of components according to claim 36, further comprising:

providing a plurality of pins between at least one of the first and second conductive elements and the third and fourth conductive elements of the backplane, and wherein connecting the respective conductive elements comprises connecting at least two pins.

38. (Original) The method of interconnecting a plurality of components according to claim 36, further comprising:

providing a plurality of connection vias between at least one of the first and second conductive elements and the third and fourth conductive elements, and wherein connecting the respective conductive elements comprises connecting at least two of the connection vias.

39. (Original) The method of interconnecting a plurality of components according to claim 36, further comprising:

receiving a configuration of connections within and among a plurality of components, and wherein connecting at least one of the first and second conductive elements and the third and fourth elements comprises automatically making connections at at least one of the first and second plurality of connection points based upon the configuration.

40. (Original) The method of interconnecting a plurality of components according to claim 36, further comprising:

connecting the backplane associated with one set of components directly to another backplane associated with another set of components.

41. (Original) The method of interconnecting a plurality of components according to claim 36, further comprising:

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connecting the backplane associated with each set of components to a second backplane; and

connecting the third and fourth conductive elements within the second backplane at a third plurality of connection points to provide interconnections among the plurality of sets of components, wherein connecting the third and fourth conductive elements comprises overlapping conductive portions of the respective conductive elements.

42. (Withdrawn) The method of interconnecting a plurality of components according to claim 36, further comprising:

providing an insulation barrier that defines at least one opening between at least one of the first and second conductive elements and the third and fourth conductive elements, and wherein connecting at least one of the respective conductive elements comprises connecting the respective conductive elements through the openings defined in the insulation barrier.

43. (Withdrawn) The method of interconnecting a plurality of components according to claim 36, further comprising:

providing fluid insulation material between at least one opening between at least one of the first and second conductive elements and the third and fourth conductive elements, and wherein connecting the respective conductive elements comprises displacing the fluid insulation material at the respective points of connection.

44. (Previously presented) The integration area according to claim 1, wherein said first conductive elements lie in a first plane and the second conductive elements lie in a second plane different than the first plane such that the interconnections extend between the first and second planes.

45. (Previously presented) The integration area according to claim 1, further comprising a plurality of interconnecting elements distinct from but joined to respective pairs of said first and second conductive elements.

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46. (Previously presented) The system of integration areas according to claim 17, wherein said first conductive elements of a respective integration area lie in a first plane and the second conductive elements of the same respective integration area lie in a second plane different than the first plane such that the interconnections extend between the first and second planes.

47. (Previously presented) The system of integration areas according to claim 17, wherein each integration area further comprises a plurality of interconnecting elements distinct from but joined to respective pairs of said first and second conductive elements.

48. (Previously presented) The method of interconnecting a plurality of components according to claim 35, wherein positioning the plurality of second conductive elements comprises positioning the second conductive elements such that the first conductive elements lie in a first plane and the second conductive elements lie in a second plane different than the first plane such that the interconnections extend between the first and second planes.